

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
31 July 2003 (31.07.2003)

PCT

(10) International Publication Number
WO 03/061629 A3

(51) International Patent Classification⁷: **A61K 9/16**,
C12N 15/89

(21) International Application Number: PCT/GB03/00336

(22) International Filing Date: 23 January 2003 (23.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0201735.8 25 January 2002 (25.01.2002) GB
0201736.6 25 January 2002 (25.01.2002) GB

(71) Applicant (for all designated States except US): **GLAXO GROUP LIMITED** [GB/GB]; Glaxo Wellcome House, Berkeley Avenue, Greenford, Middlesex UB6 0NN (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **CATCHPOLE, Ian, Richard** [GB/GB]; GlaxoSmithKline, Gunnels Wood Road, Stevenage, Hertfordshire SG1 2NY (GB).

(74) Agent: **EASEMAN, Richard, Lewis**; GlaxoSmithKline, Corporate Intellectual Property (CN925.1), 980 Great West Road, Brentford, Middlesex TW8 9GS (GB).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
2 October 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: DNA DOSAGE FORMS

(57) Abstract: The present invention relates to DNA formulations suitable for ballistic delivery into the skin of the human body. In particular the present invention provides DNA formulations suitable for ballistic administration of DNA vaccines into the skin. The present invention provides a novel DNA pharmaceutical agent dosage form, having a dense core element which is coated with an amorphous solid reservoir medium containing the DNA pharmaceutical agent.



WO 03/061629 A3

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/00336

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K9/16 C12N15/89

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N A61M A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 95 19799 A (AGRACETUS) 27 July 1995 (1995-07-27) page 21, line 1 -page 22, line 36	1-24
A	WO 97 40839 A (MERCK & CO., INC.) 6 November 1997 (1997-11-06) cited in the application claims 1-43	1-24
A	EP 1 138 337 A (QUADRANT HOLDINGS CAMBRIDGE LIMITED) 4 October 2001 (2001-10-04) claims 1-3,20,27,28	1-24

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

*** Special categories of cited documents :**

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

15 August 2003

Date of mailing of the international search report

26/08/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Benz, K

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 03/00336

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9519799	A	27-07-1995	AT 231733 T 15-02-2003
			AU 674815 B2 09-01-1997
			AU 1729595 A 08-08-1995
			BR 9505691 A 16-01-1996
			CA 2158733 A1 27-07-1995
			CN 1124460 A ,B 12-06-1996
			DE 69529495 D1 06-03-2003
			DE 69529495 T2 12-06-2003
			DK 690732 T3 19-05-2003
			EP 1293559 A1 19-03-2003
			EP 0690732 A1 10-01-1996
			JP 3221683 B2 22-10-2001
			JP 8509131 T 01-10-1996
			NZ 279995 A 27-04-1998
			RU 2134295 C1 10-08-1999
			WO 9519799 A1 27-07-1995
			US 5584807 A 17-12-1996
			US 5865796 A 02-02-1999
WO 9740839	A	06-11-1997	AU 727306 B2 07-12-2000
			AU 2924297 A 19-11-1997
			CA 2252565 A1 06-11-1997
			EP 0906110 A1 07-04-1999
			JP 2002504085 T 05-02-2002
			WO 9740839 A1 06-11-1997
			US 2002156037 A1 24-10-2002
			ZA 9703642 A 25-11-1997
EP 1138337	A	04-10-2001	US 6290991 B1 18-09-2001
			EP 1138319 A2 04-10-2001
			EP 1138337 A2 04-10-2001
			AU 688557 B2 12-03-1998
			AU 3185195 A 04-03-1996
			AU 707605 B2 15-07-1999
			AU 7186498 A 20-08-1998
			BG 101278 A 30-12-1997
			CA 2197982 A1 15-02-1996
			CZ 9700476 A3 13-08-1997
			EE 9700062 A 15-08-1997
			EP 0773781 A1 21-05-1997
			FI 970867 A 08-04-1997
			WO 9603978 A1 15-02-1996
			HU 77777 A2 28-08-1998
			JP 10503769 T 07-04-1998
			NO 971688 A 11-04-1997
			NZ 290896 A 24-04-1997
			PL 318898 A1 21-07-1997
			RU 2177785 C2 10-01-2002
			SK 27797 A3 06-08-1997
			US 2001038858 A1 08-11-2001
			US 2003054040 A1 20-03-2003
			US 6331310 B1 18-12-2001
			US 2002012687 A1 31-01-2002